

Application No. 09/890,672
Amtd. Date January 20, 2003
Reply to Final Office Action of October 17, 2003

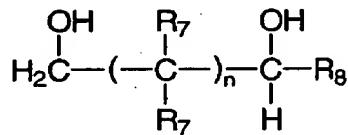
In the Claims

The listing of the claims will replace all prior versions, and listings, of claims in this application:

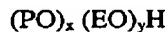
Listing of Claims:

1. (Currently Amended) A liquid dishwashing detergent composition suitable for use in hand dishwashing, said composition comprising:

- (a) a low molecular weight organic diamine having a pK1 and a pK2, wherein the pK1 and the pK2 of said diamine are both in the range of from 8.0 to 11.5;
- (b) an anionic surfactant;
- (c) an amphoteric surfactant,
- (d) a solvent selected from the group consisting of a diol, a polymeric glycol, and mixtures thereof, wherein said diol is ~~selected from the group consisting of~~ represented by the formula:



wherein n = 0- 3, R₇ = H, methyl or ethyl; and R₈ = H, methyl, ethyl, propyl, isopropyl, butyl and isobutyl; and wherein the polymeric glycol is ~~selected from the group consisting of~~ represented by the formula:



wherein PO represents a propylene oxide group and EO represents an ethylene oxide group and x+y is from 17 to 68, and x/(x+y) is from 0.25 to 1.0;

wherein the pH (as measured as 10% aqueous solution) is from 5.0 to 12.5; and wherein the mole ratio of said anionic surfactant to said amphoteric surfactant to said diamine is from 100:40:1 to 9:0.5:1.

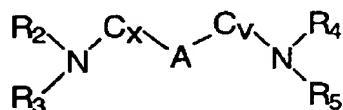
2. (Previously Presented) A liquid dishwashing detergent composition according to Claim 1 further comprising a buffering agent and wherein the composition has a pH of from 10 to 11.5.

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3. (Previously Presented) A liquid dishwashing detergent composition according to Claim 2 wherein the diol is selected from the group consisting of propylene glycol, 1,2 hexandiol, 2-ethyl-1,3-hexanediol and 2,2,4-trimethyl-1,3-pentanediol and mixtures thereof.

4. (Previously Presented) A liquid dishwashing detergent composition according to Claim 3 wherein the polymeric glycol is polypropylene glycol having a molecular weight of from 1000 to 5000.

5. (Currently Amended) A liquid dishwashing detergent composition according to Claim 4 wherein said diamine is selected from the group consisting of represented by the formula:

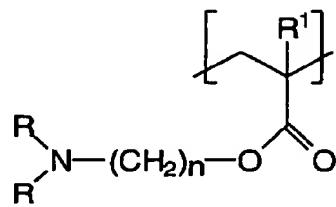


wherein $R_{2,5}$ are independently selected from H, methyl, ethyl, and ethylene oxides; C_x and C_y are independently selected from methylene groups or branched alkyl groups where $x+y$ is from 3 to 6; and A is optionally present and is selected from electron donating or withdrawing moieties chosen to adjust the diamine pKa's to the desired range; wherein if A is present, then both x and y must be 2 or greater.

6. (Previously Presented) A liquid dishwashing detergent composition according to Claim 5 wherein the polymeric glycol is polypropylene glycol having a molecular weight of from 2000 to 4000 and is present in a range of from 0.25% to 5.0%, by weight of the composition.

7. (Currently Amended) A liquid dishwashing detergent composition according to Claim 6 further comprising a polymeric suds stabilizer selected from the group consisting of:

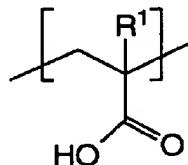
(i a) homopolymers of (N,N-dialkylamino)alkyl acrylate esters having the formula:



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wherein each R is independently hydrogen, C₁-C₈ alkyl, and mixtures thereof, R¹ is hydrogen, C₁-C₆ alkyl, and mixtures thereof, n is from 2 to 6; and

(ii b) copolymers of (i a) and



wherein R¹ is hydrogen, C₁-C₆ alkyl, and mixtures thereof; provided that the ratio of (ii b) to (i a) is from 2 to 1 to 1 to 2; and

(c) mixtures thereof;

wherein said polymeric suds stabilizer has a molecular weight of from 1,000 to 2,000,000 daltons.

8. (Previously Presented) The liquid dishwashing detergent composition according to Claim 7 further comprising α -amylases.

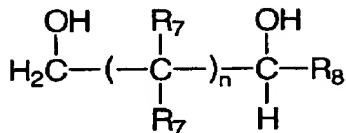
9. (Currently Amended) A method for cleaning a substrate in a manual dishwashing operation comprising the steps of:

- (a) contacting the substrate with a liquid dishwashing detergent composition prepared according to of claim 1; and
- (b) allowing the detergent composition to remain in contact with the substrate for a sufficient time to provide effective cleaning benefits to the substrate.

10. (Previously Presented) A method according to Claim 9, wherein the liquid dishwashing detergent composition is applied to the substrate with no more than 90% dilution with water.

11. (Currently Amended) The liquid dishwashing composition according to Claim 1, wherein the solvent is a diol and wherein the diol is selected from the group consisting of represented by the formula:

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wherein $n = 0-3$, $\text{R}_7 = \text{H}$, methyl or ethyl; and $\text{R}_8 = \text{H}$, methyl, ethyl, propyl, isopropyl, butyl and isobutyl.

12. (Previously Presented) The liquid dishwashing composition according to Claim 1, wherein the polymeric glycol is polypropylene glycol.

13. (Currently Amended) The liquid dishwashing composition according to Claim 1, wherein the composition comprises from about 0.1% to about 20% by weight of the composition of amphoteric surfactant.

14. (Currently Amended) The liquid dishwashing composition according to Claim 1, wherein the composition comprises from about 5% to about 50% by weight of the composition of anionic surfactant.

15. (Currently Amended) The liquid dishwashing composition according to Claim 1, wherein the composition comprises from about 0.1% to about 5% by weight of the composition of diamine, which has a molecular weight of less than or equal to 400 g/mol.

16. (Currently Amended) The liquid dishwashing composition according to Claim 1, wherein the composition comprises from about 0.5% to about 25.0% by weight of the composition of solvent.

17. (Currently Amended) A liquid dishwashing detergent composition suitable for use in hand dishwashing, said composition comprising:

- (a) from 0.1% to about 5% by weight of a low molecular weight organic diamine having a molecular weight of less than or equal to 400g/mol and a pK1 and a pK2, wherein the pK1 and pK2 of said diamines diamine are both in the range of from 8.0 to 11.5;
- (b) from about 5% to about 50% by weight of an anionic surfactant;
- (c) from about 0.1% to about 20% by weight of an amphoteric surfactant; and

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(d) from about 0.50% to about 25.0% by weight of a polypropylene glycol solvent, wherein the pH as measured as a 10% aqueous solution is from about 5.0 to about 12.5, and the mole ratio of said anionic surfactant to said amphoteric surfactant to said diamine is from about 100:40:1 to about 9:0.5:1.

18. (New) The liquid dishwashing composition according to Claim 1, wherein when said solvent is a polymeric glycol, and said composition further comprises at least one of the following: a diol or alkali metal inorganic salt.

19. (New) The liquid dishwashing composition according to Claim 17, wherein said composition further comprises at least one of the following: a diol or alkali metal inorganic salt.